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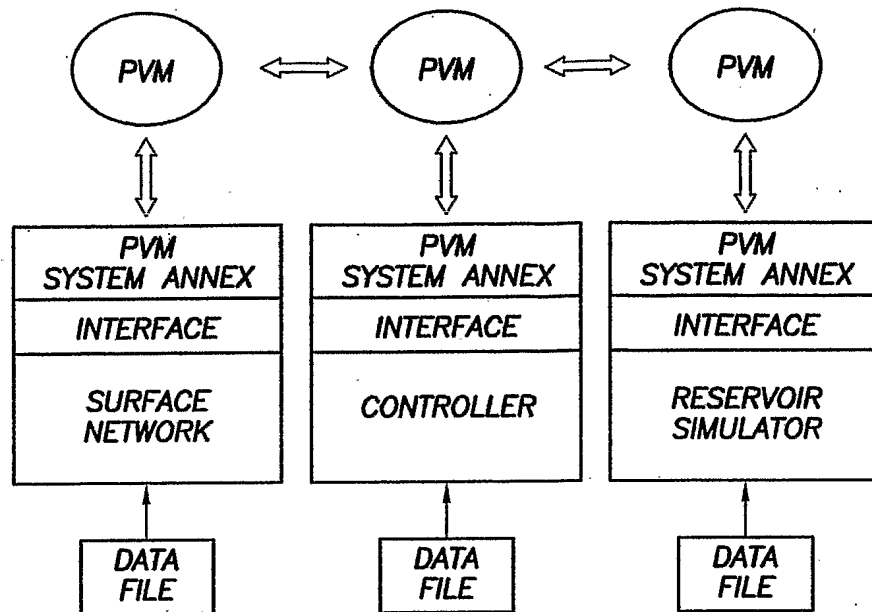


FIG.1—ARCHITECTURE OF THE COUPLED RESERVOIR/
NETWORK SYSTEM.

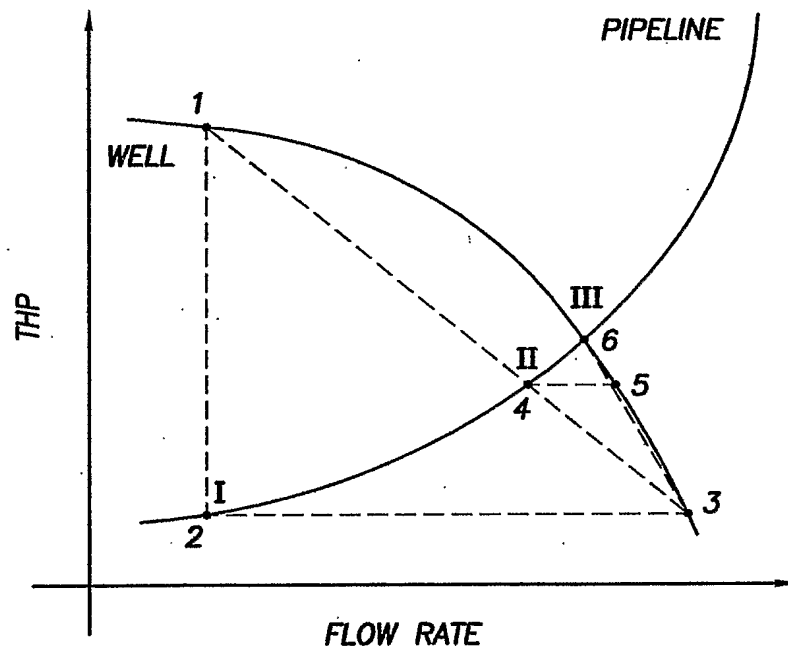


FIG.2—BALANCING A PRODUCTION WELL AND A NETWORK
PIPELINE.

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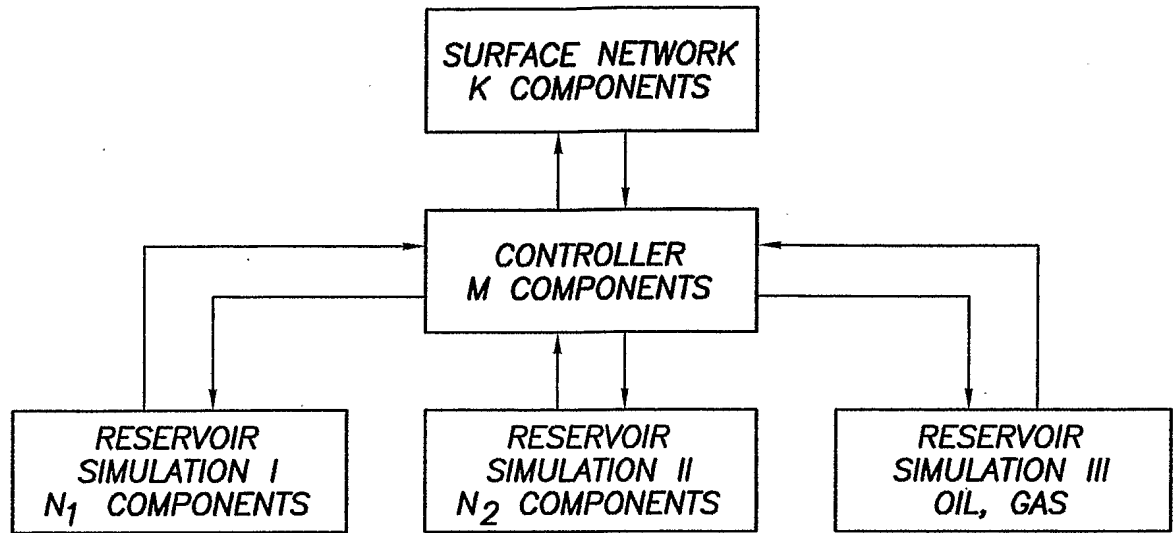


FIG.3 –PSEUDO–COMPONENT SETS IN A COUPLED SIMULATION.

COMPONENTS/ PSEUDO–COMPONENTS	MOLE FRACTION
N ₂	0.0069
CO ₂	0.0069
C ₁	0.5280
C ₂ –C ₃	0.1515
C ₄ –C ₆	0.0703
C ₈	0.0867
HC13	0.0529
HC18	0.0340
HC26	0.0238
HC43	0.0145

TABLE 1 –INITIAL COMPOSITION IN THE ENTIRE RESERVOIR.

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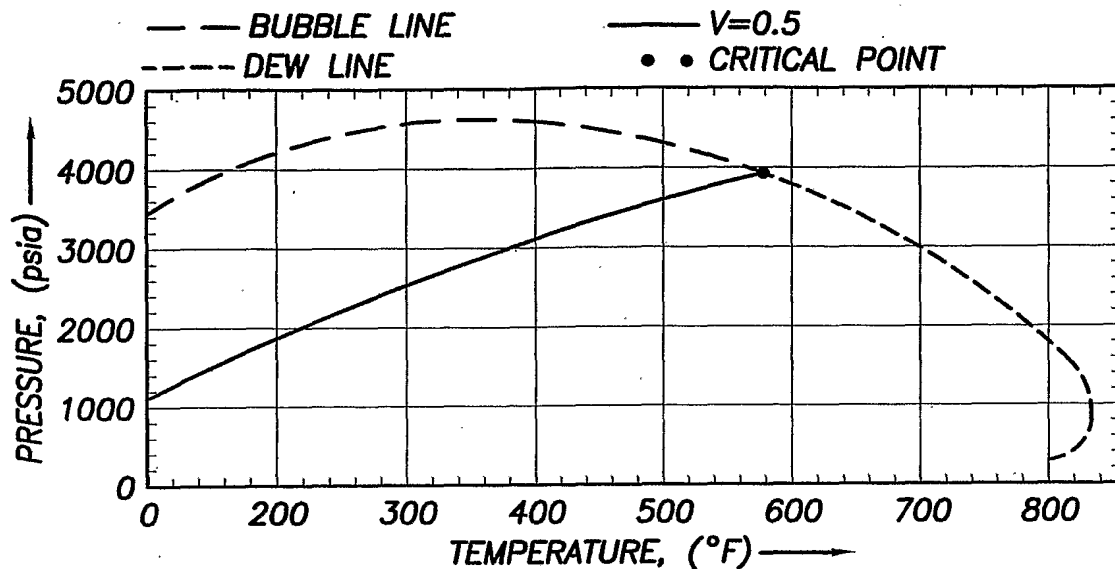


FIG.4 —PHASE PLOT FOR THE PVT SAMPLE USED IN THE BLACK OIL DELUMPING VALIDATION EXAMPLE. RESERVOIR TEMPERATURE=284 °F. INITIAL PRESSURE AT THE TOP OF THE RESERVOIR=4600 psi.

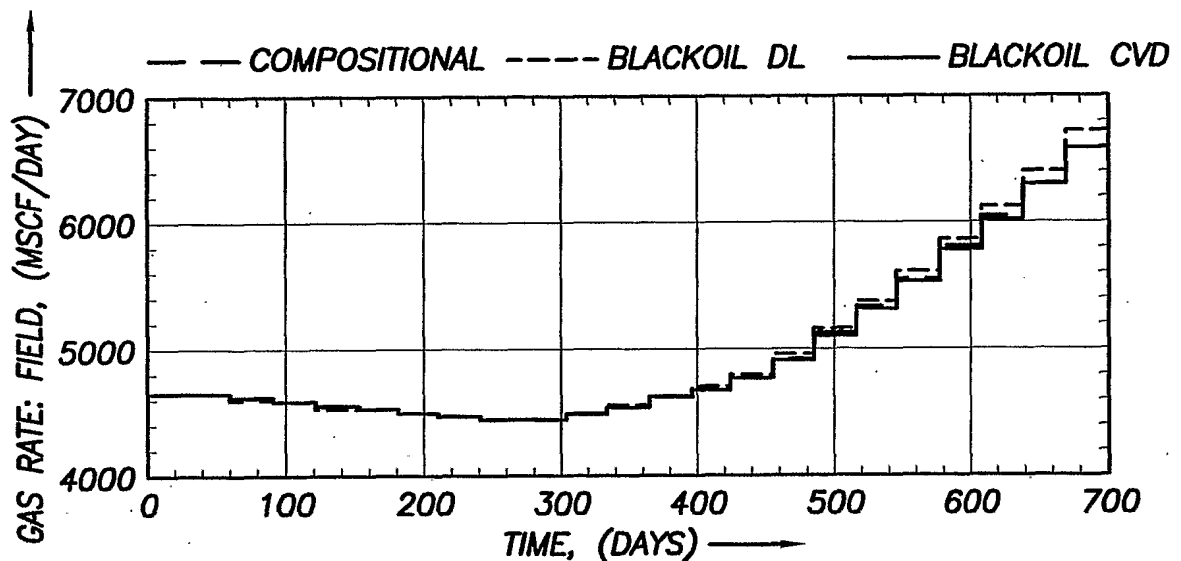


FIG.5 —FIELD GAS PRODUCTION RATE

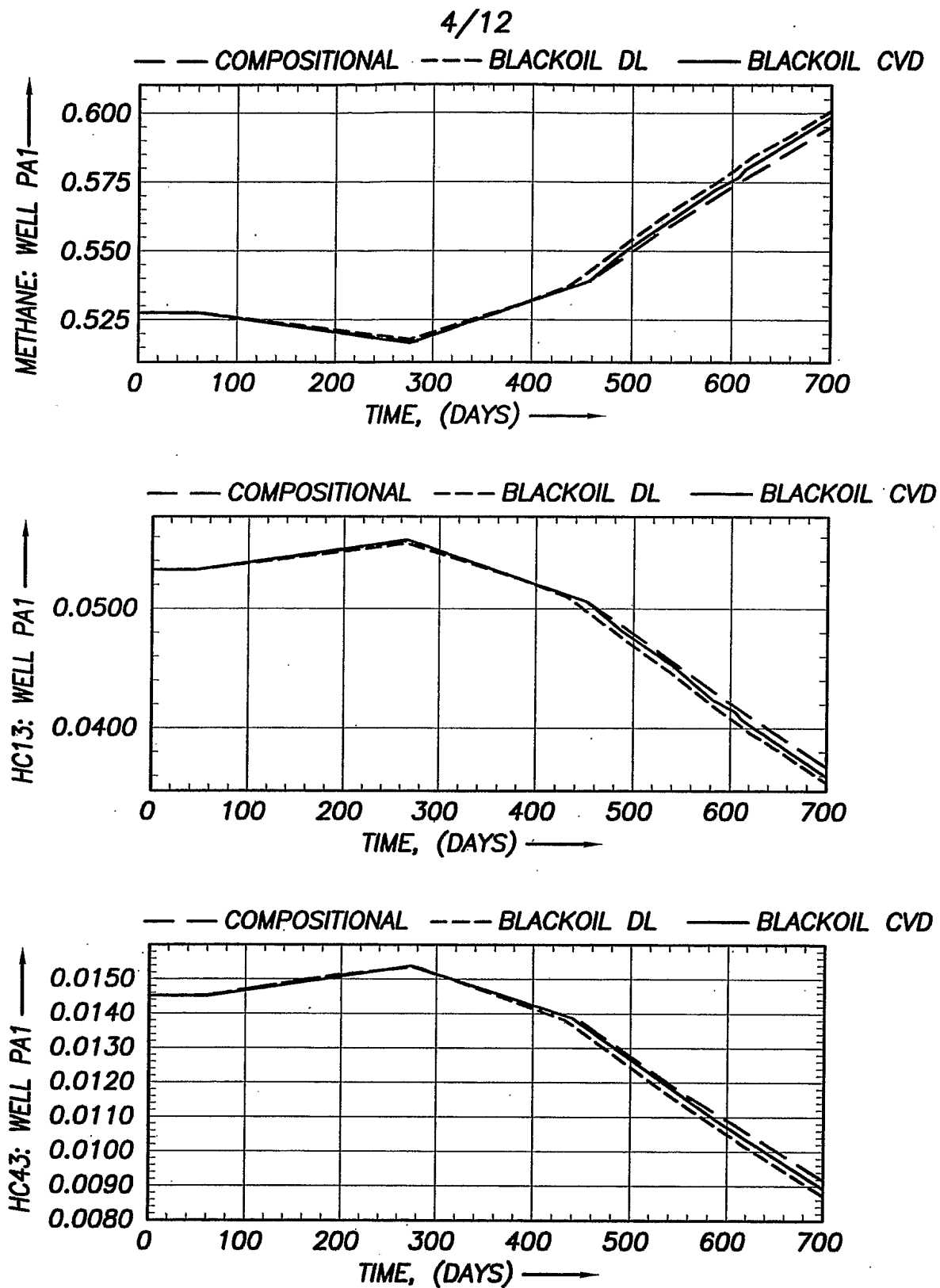


FIG.6 — MOLE FRACTION OF METHANE AND THE HC13 AND HC43
PSEUDO-COMPONENTS' MOLE FRACTION VS. TIME FOR WELL PA1

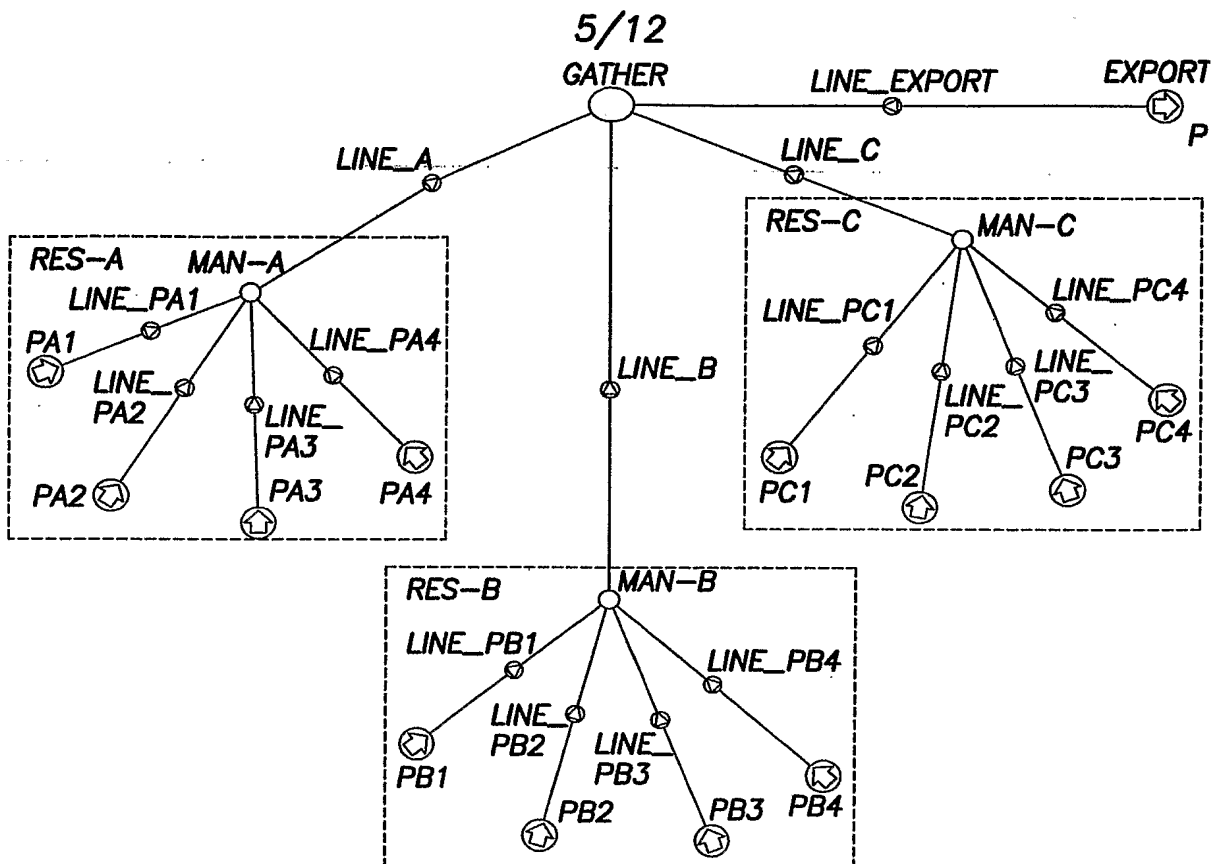


FIG.7—SKETCH OF THE SURFACE NETWORK USED IN EXAMPLE 1.

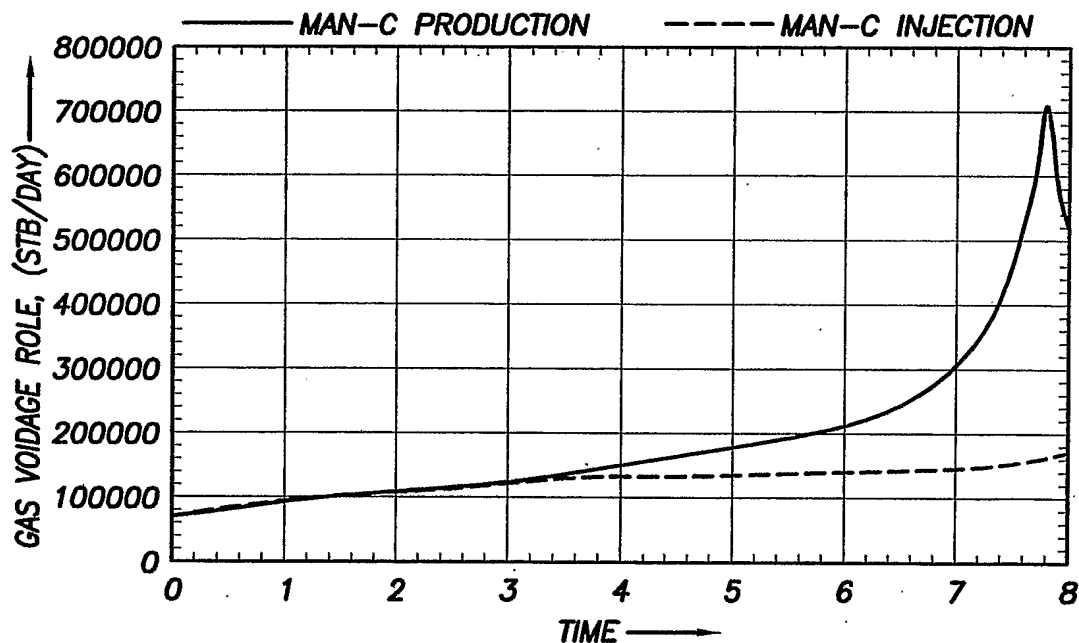


FIG.14—MAN-C RESERVOIR VOLUME PRODUCTION RATE AND RESERVOIR VOLUME GAS INJECTION RATE VS. TIME; EXAMPLE II

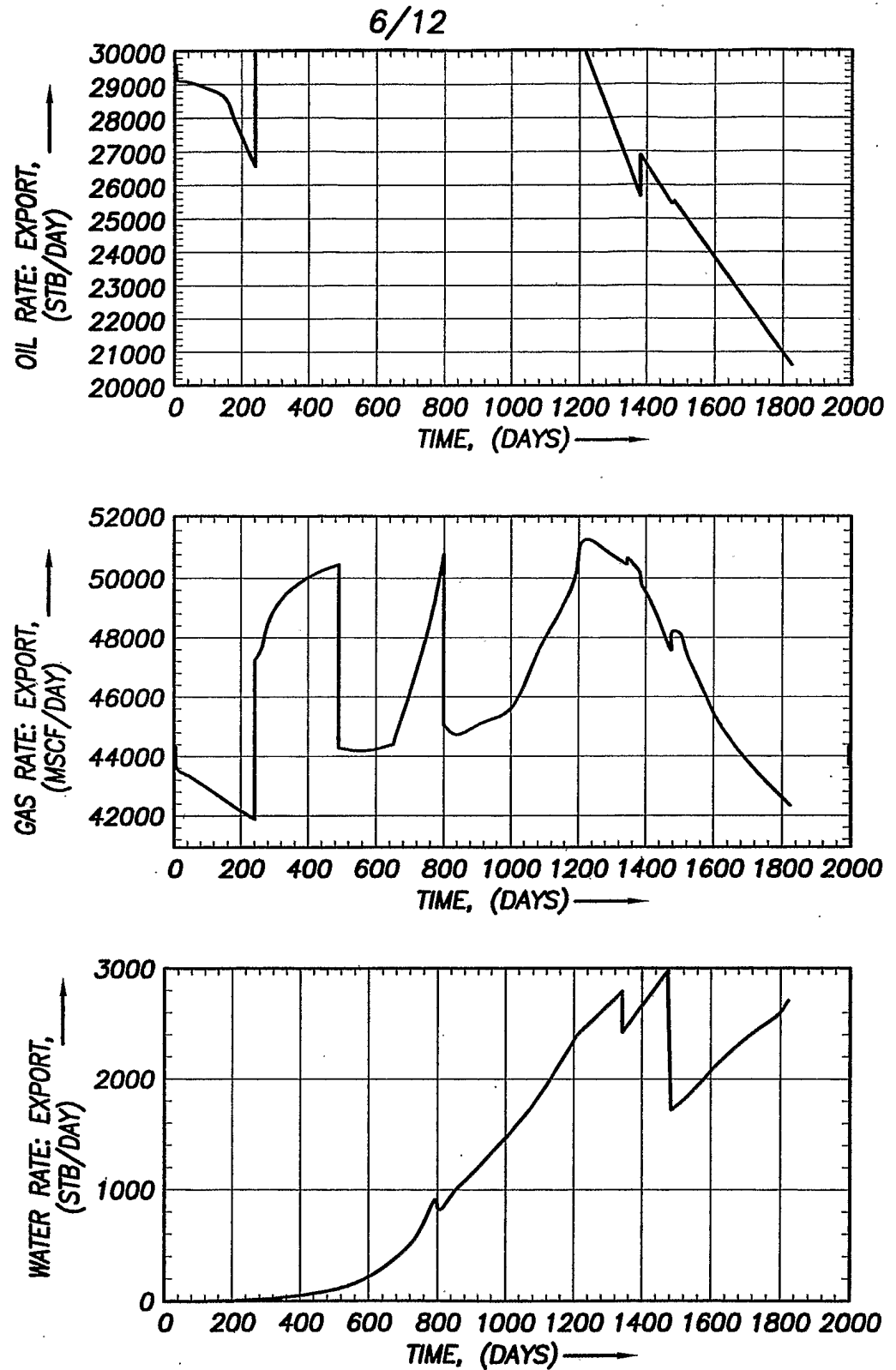


FIG.8 -OIL, GAS AND WATER PRODUCTION RATE VS. TIME AT THE EXPORT NODE; EXAMPLE I

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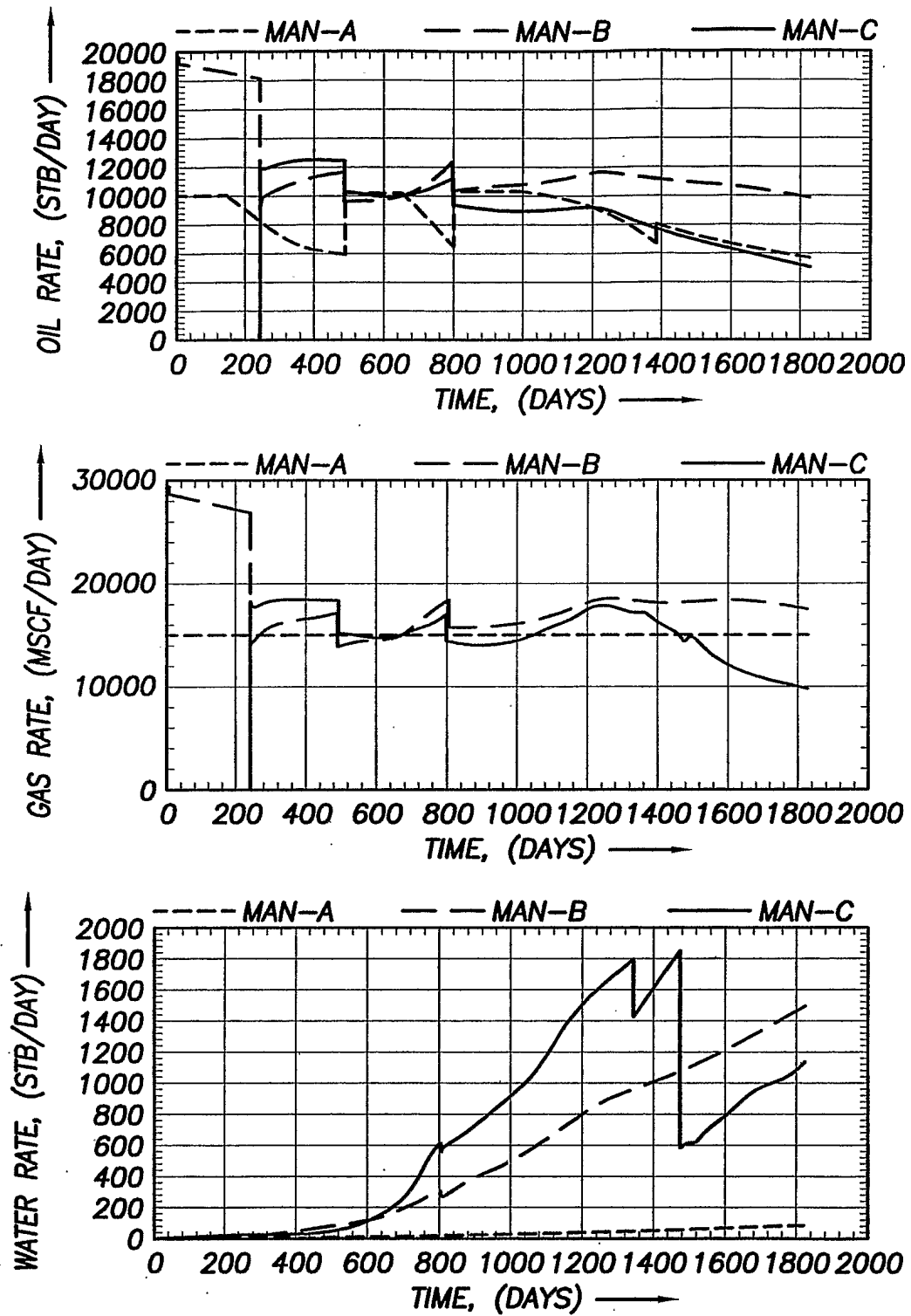


FIG.9 -OIL, GAS AND WATER PRODUCTION RATE VS. TIME FOR THE THREE COUPLED RESERVOIRS; EXAMPLE I.

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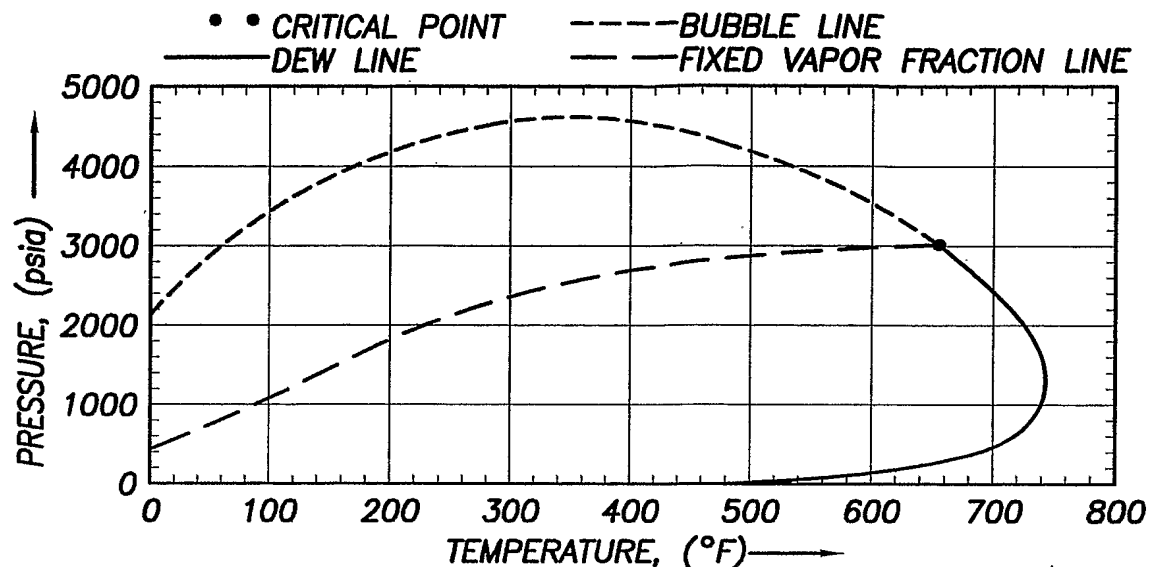


FIG. 10 -PHASE PLOT FOR THE PVT SAMPLES USED IN RESERVOIR B, EXAMPLE II. RESERVOIR TEMPERATURE=284°F. INITIAL PRESSURE AT THE TOP OF THE RESERVOIR=4600 psi.

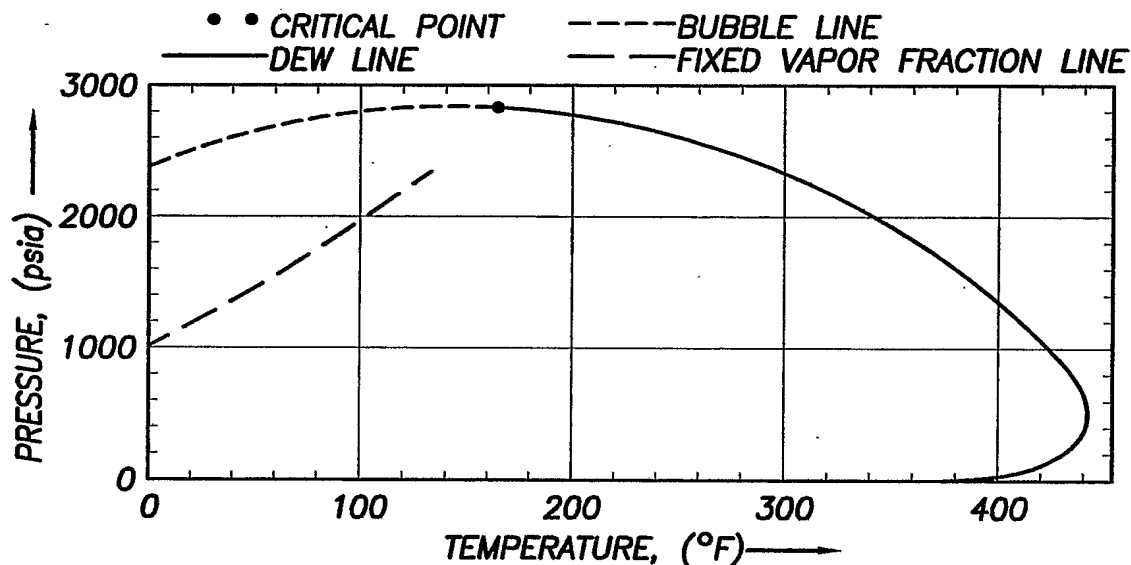
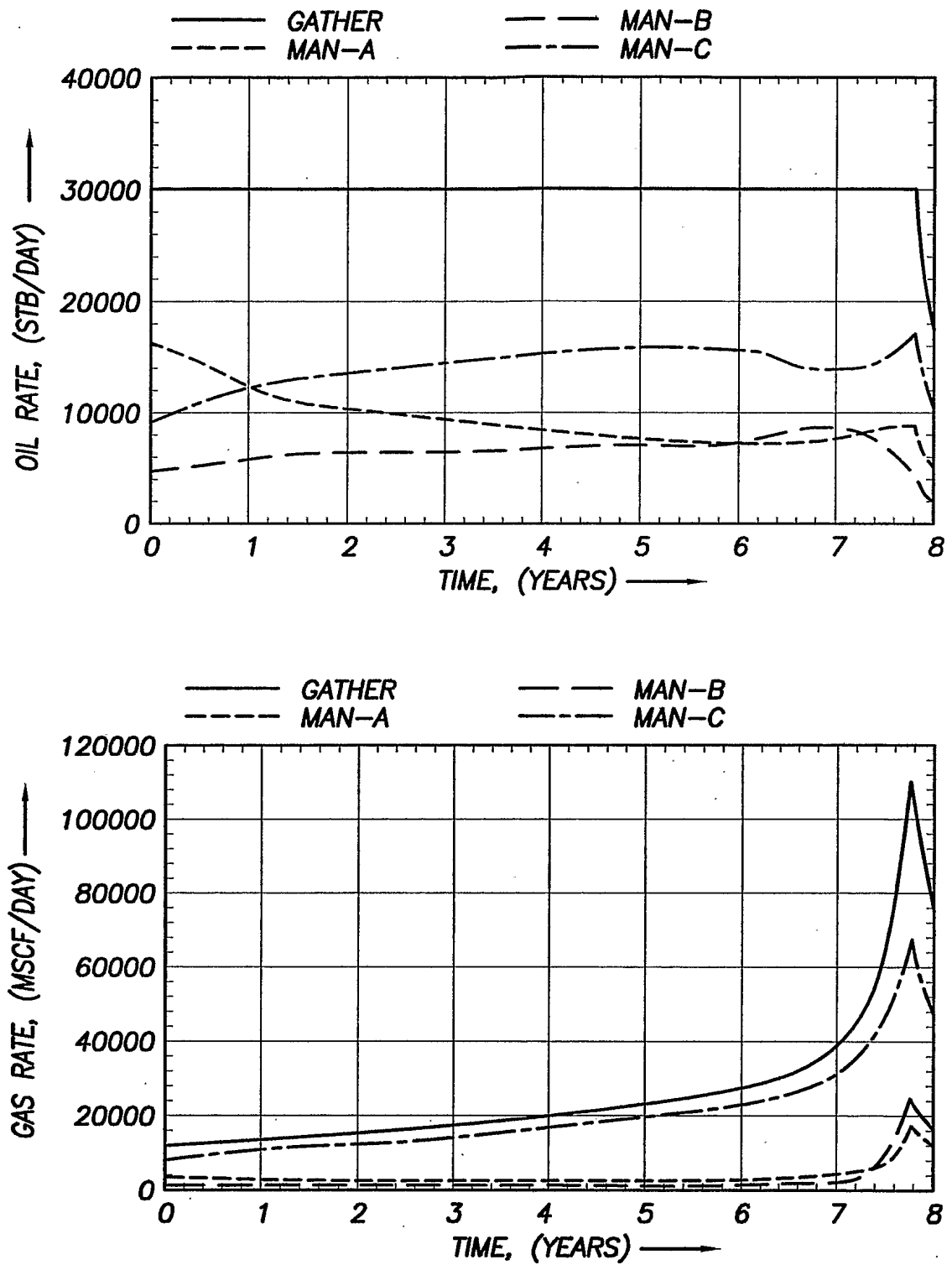


FIG. 11 -PHASE PLOT FOR THE PVT SAMPLES USED IN RESERVOIR C, EXAMPLE II. RESERVOIR TEMPERATURE=200°F. INITIAL PRESSURE AT THE TOP OF THE RESERVOIR=3000 psi.

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**FIG.12**—OIL AND GAS PRODUCTION RATE VS. TIME; EXAMPLE II.

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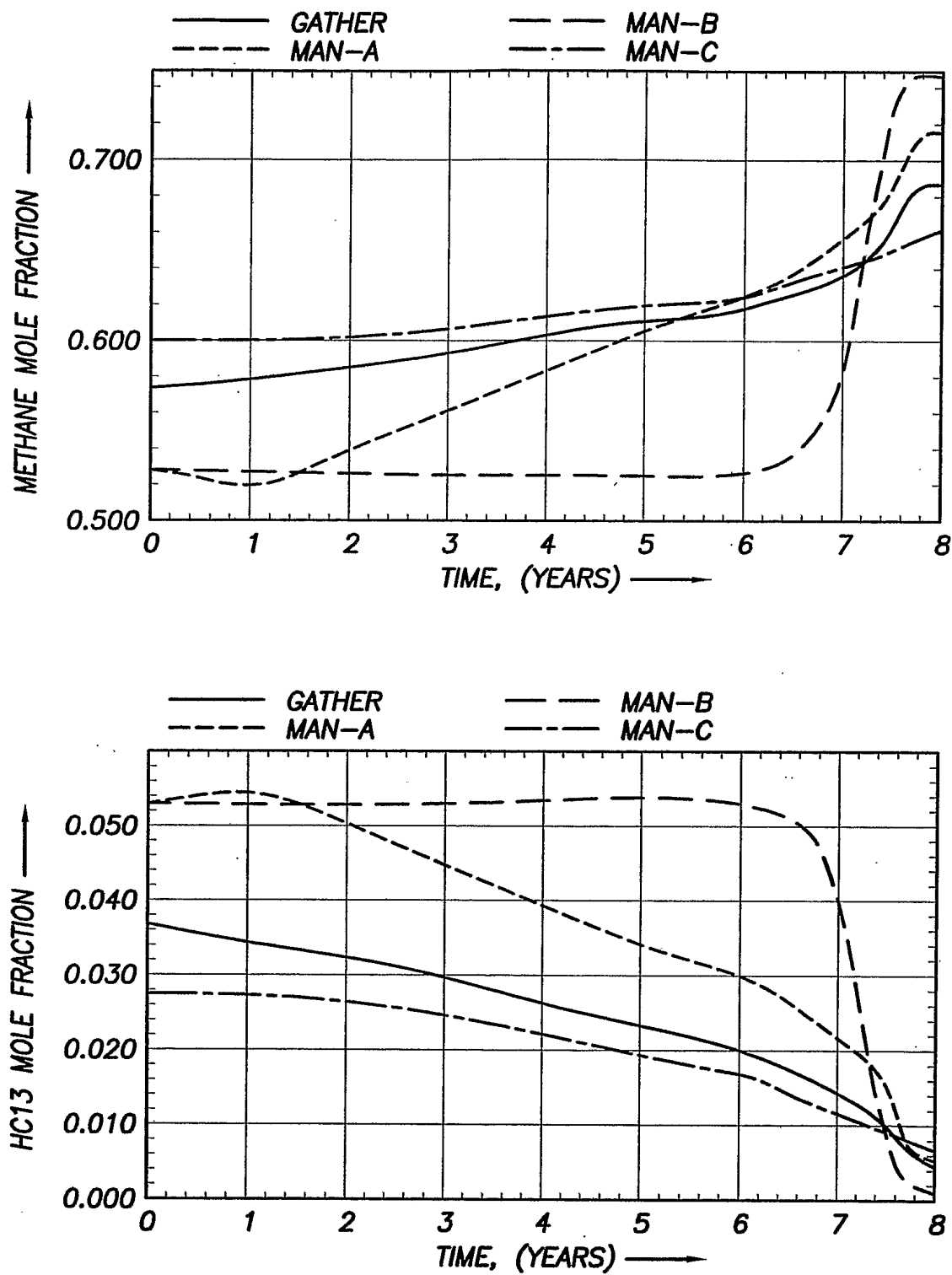


FIG.13—PRODUCED METHANE AND HC13 COMPOSITION VS. TIME; EXAMPLE II.

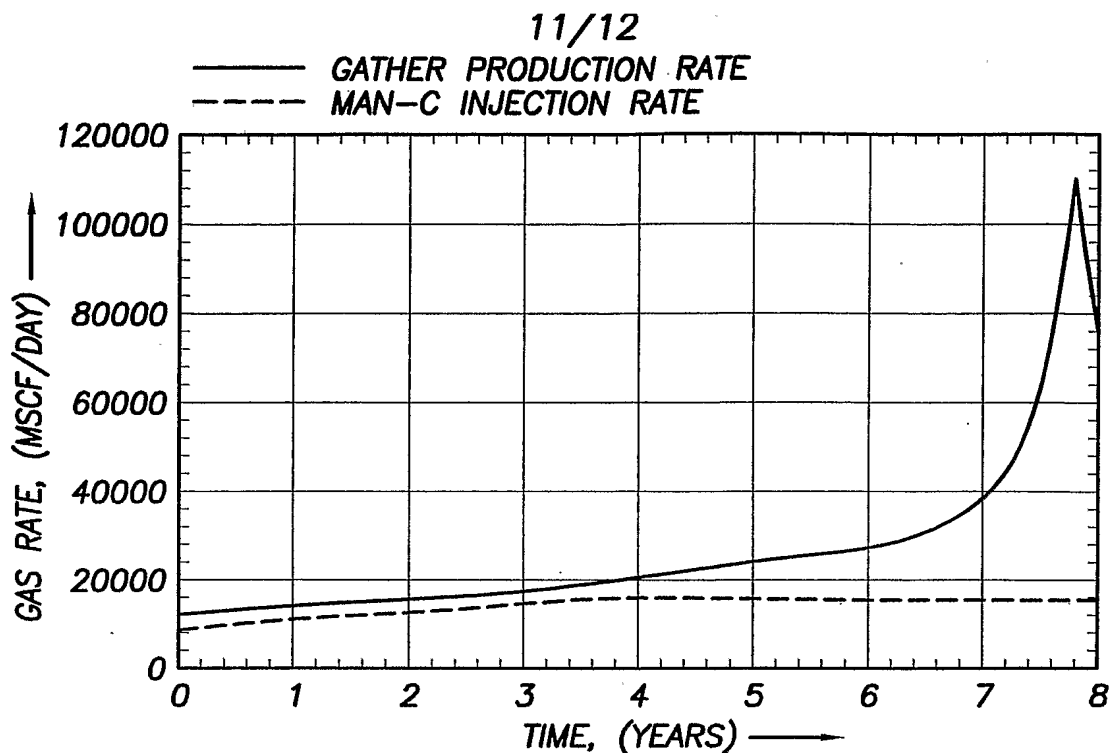


FIG. 15—GATHER GAS PRODUCTION RATE AND MAN-C GAS INJECTION RATE VS. TIME; EXAMPLE II.

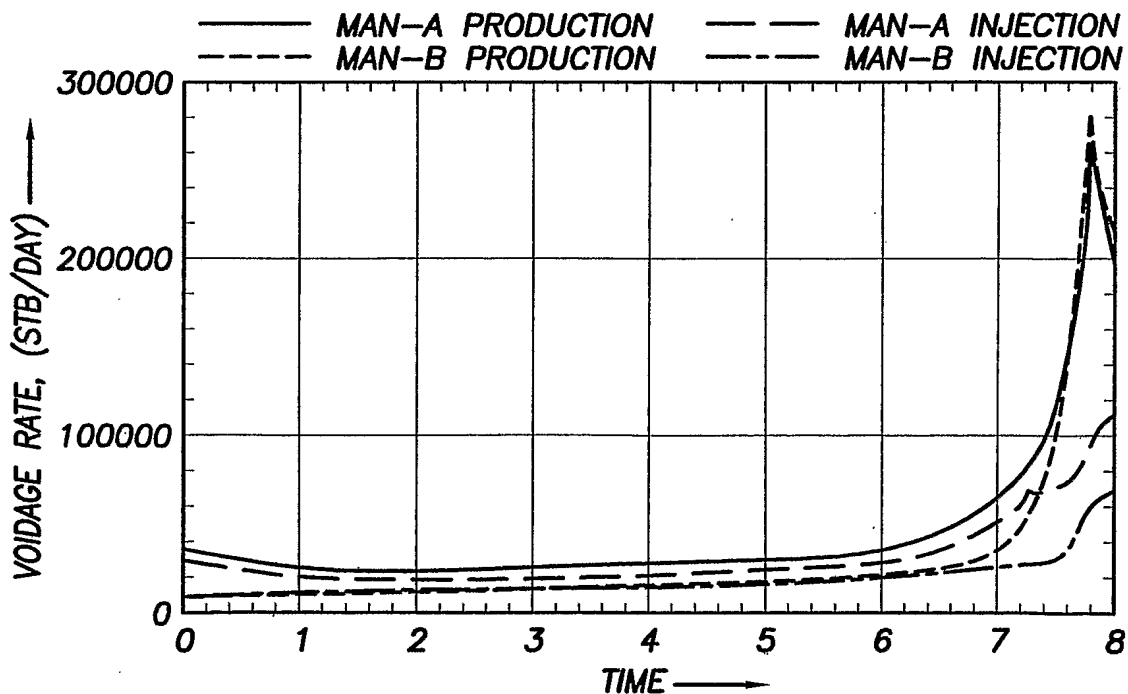


FIG. 16—MAN-A AND MAN-B RESERVOIR VOLUME PRODUCTION RATE AND RESERVOIR VOLUME WATER INJECTION RATE VS. TIME; EXAMPLE II.

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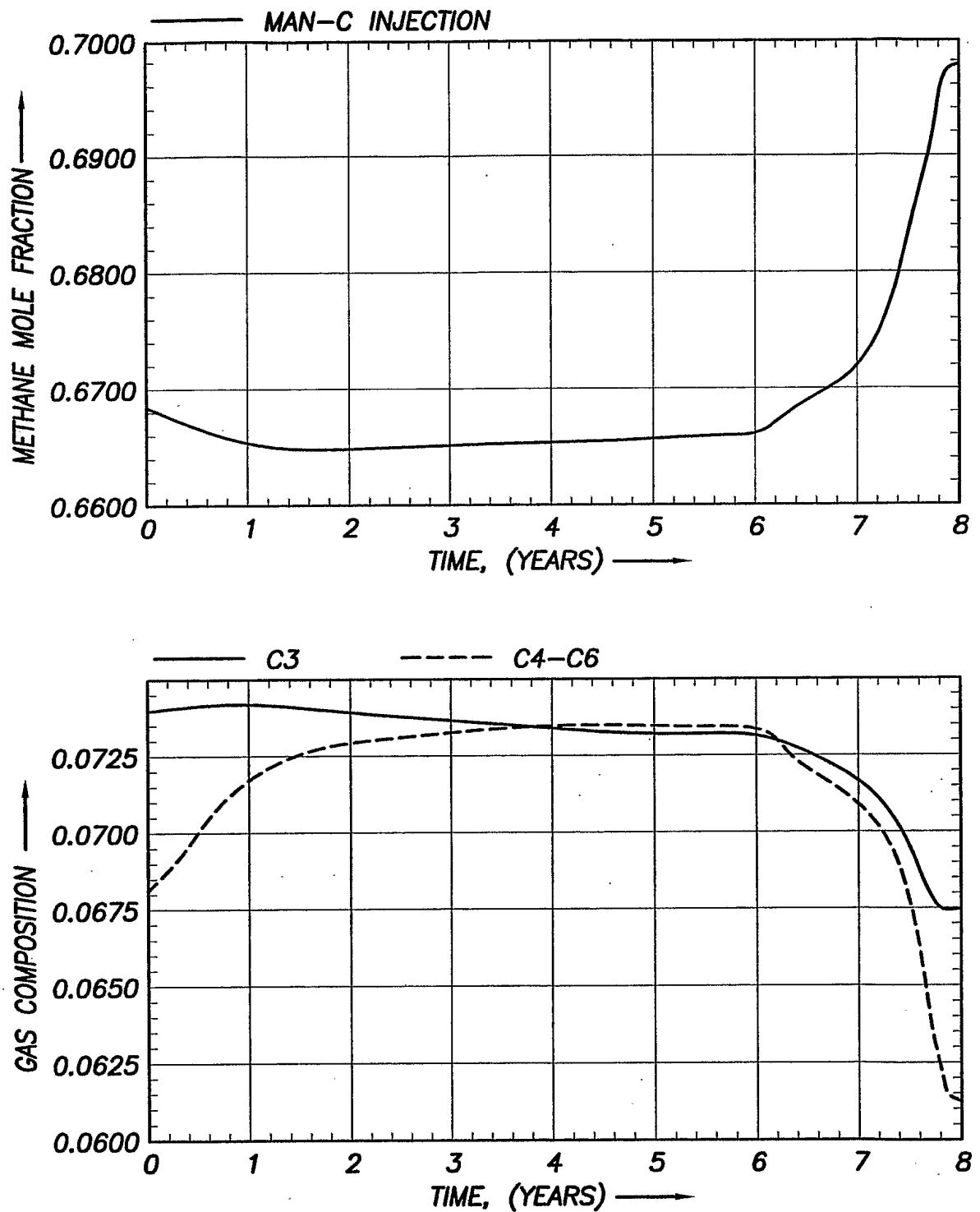


FIG. 17—INJECTED GAS COMPOSITION VS. TIME, MAN-C;
EXAMPLE II.